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# Predictors of Social Media Self-Control Failure: Immediate Gratifications, Habitual Checking, Ubiquity, and Notifications

Jie Du, MSc, Peter Kerkhof, PhD, and Guido M. van Koningsbruggen, PhD

## Abstract

Social media users often experience the difficulty of controlling their social media use while having important tasks to do. Recent theorizing on self-control and media use proposes four possible factors (immediate gratifications, habitual checking, ubiquity, and notifications) that might cause social media self-control failure (SMSCF). We tested whether these factors indeed predict SMSCF among 590 daily social media users. Results showed that, when people checked social media habitually, or strongly experienced the online ubiquity of social media, or perceived strong disturbances from social media notifications, they were more likely to fail to control their social media use. However, social media-related immediate gratifications did not predict SMSCF. This study empirically identified social media-related factors that might induce social media users' self-control difficulty.

**Keywords:** social media, self-control, immediate gratifications, habitual checking, ubiquity, notifications

## Introduction

SOCIAL MEDIA SELF-CONTROL FAILURE (SMSCF) refers to a situation in which people fail to resist the temptation to use social media (e.g., social networks such as Facebook, instant messengers such as WhatsApp, and content communities such as YouTube) while having other important obligations at hand (e.g., working or house duties).<sup>1</sup> Media self-control failure constitutes a considerable proportion of people's everyday experience of lapses in self-control.<sup>2,3</sup> Among social media users, it was reported that ~35% of the time spent on social media was perceived as using one's time less efficiently, being in conflict with other goals, and delaying other tasks.<sup>1</sup> Moreover, SMSCFs have been linked to decreases in well-being and increases in people's feelings of guilt regarding their social media use.<sup>1,4</sup>

Exploring the factors leading to SMSCF may have significance for managing people's daily obligations in a media-pervasive environment, and will provide insight into how information and communication technology can serve people's lives in a better way. In recent literature on media use and self-control, four factors have been proposed that turn media into a seductive temptation and trigger the impulsive use of (social) media that might increase self-control failure.<sup>5,6</sup> Accordingly, this study investigated to what extent these factors—media-related immediate gratifications, habitual checking, ubiquity, and notifications—predict SMSCF.

A primary factor that might predict people's self-control failure is the—expected and actual—outcomes of social media use. Social media use results in several gratifications such as social gratifications and gratifications from enjoyable activities online.<sup>7,8</sup> The gratifications obtained from social media could raise people's expectations regarding the instant rewards from using social media.<sup>9</sup> The expected rewards from enacting a social media temptation are typically short-term goals compared with the rewards from other long-term goals such as study or work.<sup>5,6</sup> This might lead to the tendency to postpone the effort needed to achieve the long-term goals in favor of short-term goals, immediate gratifications, which increases the risk of SMSCF.

Another factor that may cause self-control failure is social media-related habitual checking behavior. Habitual checking refers to the learned sequences of automatic and routinized activation of social media checking behavior.<sup>10,11</sup> Through repeated use of social media, people might have developed spontaneous affective and approach tendencies in response to social media-related stimuli (e.g., seeing the Facebook logo).<sup>12,13</sup> These tendencies could facilitate the activation of social media habits in both habitual selection (e.g., mindlessly clicking the Facebook icon) and execution stages (e.g., mindlessly scrolling down the Facebook timeline).<sup>14</sup> Moreover, habitual checking enables social media use to become a routine everyday activity<sup>15</sup> (e.g., checking one's social media before falling asleep).<sup>16</sup> When habits conflict with people's goal-pursuit

activities, people need to exert self-control to override it.<sup>5</sup> The more frequently people activate the checking habit and the stronger the habit is, the more difficulties people might experience in overruling it to prevent SMSCF.

The third factor that might drive people's self-control failure is the perceived ubiquity of social media. This refers to the perception of being always online, despite the apparent limitations of time and location.<sup>17,18</sup> Social media provides users with the ubiquitous opportunity for multiuser real-time interaction at a multitude of levels.<sup>19</sup> This may result in the blurring of online and offline spheres, such as having thoughts and emotions related to the online sphere even during offline social situations.<sup>20</sup> Perceptions of being permanently online might interfere with self-control by increasing the accessibility of social media-related cognitions while decreasing the accessibility of cognitions related to other (long-term) goals.<sup>21</sup> This could also promote SMSCF.

Lastly, social media notifications might be an "external" source that disrupts people from keeping up with their primary goals, which causes SMSCF. Social media notifications consist of visual, audio, or tactile alerts informing people of multiple types of information (e.g., instant messages, pushed updates of news and e-mails).<sup>22</sup> Notifications interrupt people's goal pursuit by shifting their attention from their goals to social media. This has been demonstrated to disturb ongoing conversations,<sup>23</sup> work,<sup>24</sup> and task performance even without actual interaction with a smartphone.<sup>25</sup> Moreover, notifications (e.g., an unread instant message) create a pressure to reply.<sup>5</sup> This is because a long response latency could breach the sender's expectancy and cause a negative evaluation of the receiver.<sup>26</sup> To avoid this, upon receiving a notification, people might tend to shorten the response latency as much as possible. Thus notifications force people to turn away from their primary goals, which increases the risk of SMSCF.

Taken together, we hypothesized that (a) the more people obtain immediate gratifications from using social media, (b) the higher the extent of social media habitual checking, (c) the higher the perception of the ubiquity of social media, and (d) the higher the perceived interference of social media notifications, the more likely social media users experience SMSCF.

## Methods

We preregistered the study regarding how we determined the sample size, data exclusion criteria, and measures to be used.\*

### Design, participants, and procedure

This study is part of a three-wave longitudinal study. This article reports the first wave's results that specifically focused on the predictors of SMSCF.

An online survey was distributed through the prolific participant pool.<sup>27</sup> From the initial sample of 628 participants, we removed 8 duplicate cases and 26 participants who were not between 16 and 60 years.<sup>1</sup> To prevent possible bias by "speeders,"<sup>28</sup> four participants who completed the survey faster than 40% of the median completion time<sup>29</sup> (i.e., faster than 156.2 seconds) were excluded.<sup>a</sup> The final sample included 590 participants ( $M_{\text{age}} = 33.81$ ,  $SD_{\text{age}} = 9.78$ ; 74%

females; completion time [median = 394 seconds, range = 171–6,186 seconds]). Facebook (86%), WhatsApp (58%), Facebook messenger (54%), and YouTube (53%) were listed as the most often used social media platforms. Most participants were from the United Kingdom (86%), 98% reported an education level equal to or higher than secondary school/General Certificate of Secondary Education, and 52% were employed for wages. After providing consent, participants were instructed to complete a questionnaire regarding their social media use, the four predictors, their levels of SMSCF, and demographic information. Each participant received 0.90 GBP for completing the survey.

### Measurements

Immediate gratifications were measured with 17 items assessing to which extent using social media enabled participants to immediately satisfy several gratifications<sup>7</sup> (e.g., "feel relaxed," "get support from others"; 1 = *disagree very much*, 7 = *agree very much*;  $M = 4.73$ ,  $SD = 1.00$ ,  $\alpha = 0.92$ ). The scale showed a three-dimensional structure that explained 62.8% of the variance, with eigenvalues ranging from 1.25 to 7.32 (Appendix Table A1). Following the content of the items in each component, we named the three components "entertainment gratifications," "social gratifications," and "information seeking gratifications." Item 16 (i.e., "Using social media enables me to immediately forget my problems") was excluded due to the high cross-loading ( $>0.40$ ), indicating poor discrimination of the two components of this item.

Habitual checking of social media was assessed with an adapted version of the 12-item Self-Report Habit Index<sup>10</sup> (e.g., "Checking social media is something I do automatically," "Checking social media is something I do without thinking"; 1 = *disagree*, 5 = *agree*;  $M = 3.68$ ,  $SD = 0.94$ ,  $\alpha = 0.95$ ).

Ubiquity was assessed with the *salience* subscale from the Online Vigilance Scale.<sup>20</sup> This subscale measures people's tendency to think frequently and intensively about their personal online sphere even when they are not using a device, which fits our operational definition of perceived ubiquity of social media (four items, e.g., "My thoughts often drift to social media," "Often social media occupies my thoughts, even as I am dealing with other things"; 1 = *does not apply at all*, 5 = *fully applies*;  $M = 2.57$ ,  $SD = 1.00$ ,  $\alpha = 0.87$ ).

Perceived disturbances of notifications were assessed with three items ("How often do you receive notifications from social media," "how often are you momentarily distracted due to a notification of social media," and "how often do others expect you to react directly when you receive a notification from them through social media?"; 1 = *never*, 5 = *always*;  $M = 3.18$ ,  $SD = 0.91$ ,  $\alpha = 0.81$ ).

SMSCF was assessed with the 3-item SMSCF scale<sup>1</sup> ("How often do you give in to a desire to use social media even though your social media use at that particular moment (1) conflicts with other goals [for example: doing things for school/study/work or other tasks], (2) makes you use your time less efficiently, and (3) makes you delay other things you want or need to do?"; 1 = *almost never*, 5 = *very often*;  $M = 3.08$ ,  $SD = 1.02$ ,  $\alpha = 0.90$ ).

Participants' social media use was assessed with two questions<sup>1</sup> ("On average, approximately how many minutes per day do you spend on social media?" (1 = *10 minutes or less*, 2 = *11–30 minutes*, 3 = *31–60 minutes*, 4 = *1–2 hours*,

\*See <https://aspredicted.org/pb5ig.pdf>; for materials and data of this study, see <https://osf.io/tsyr6>

TABLE 1. DESCRIPTIVE ANALYSIS OF THE SCALES AND DEMOGRAPHICS OF THE PARTICIPANTS

	IG	IGE	IGS	IGI	Habit	Ubiquity	NOTI	SMSCF	SMuse	Age	Gender <sup>a</sup>
IG	—										
IGE	0.77***	—									
IGS	0.93***	0.52***	—								
IGI	0.62***	0.42***	0.45***	—							
Habit	0.55***	0.53***	0.48***	0.26***	—						
Ubiquity	0.40***	0.27***	0.38***	0.22***	0.50***	—					
NOTI	0.38***	0.29***	0.37***	0.17***	0.46***	0.41***	—				
SMSCF	0.31***	0.31***	0.25***	0.14***	0.51***	0.48***	0.46***	—			
SMuse	0.37***	0.36***	0.29***	0.26***	0.49***	0.32***	0.42***	0.39***	—		
Age	-0.12**	-0.20***	-0.06	-0.01	-0.18***	-0.16***	-0.17***	-0.29***	-0.24***	—	
Gender <sup>a</sup>	0.25***	0.19***	0.25***	0.11**	0.16***	0.04	0.12**	0.09*	0.19***	0.05	—
<i>M</i>	4.73	5.20	4.54	4.70	3.68	2.57	3.18	3.08	3.82	33.81	0.74
<i>SD</i>	1.00	1.05	1.19	1.44	0.94	1.00	0.91	1.02	1.22	9.78	0.44
Range	1.29–7	1–7	1–7	1–7	1–5	1–5	1–5	1–5	1.5–5	16–60	—
$\alpha/r$	0.92	0.83	0.91	0.88	0.95	0.87	0.81	0.90	0.60	—	—

Note: *N* = 590.

\**p* < 0.05, \*\**p* < 0.01, \*\*\**p* < 0.001.

<sup>a</sup>Coded as 0 = male, 1 = female.

IG, immediate gratifications; IGE, immediate gratifications (entertainment); IGI, immediate gratifications (information seeking); IGS, immediate gratifications (social); Habit, habitual checking; NOTI, notifications; SMSCF, social media self-control failure; SMuse, social media use.

5 = 2–3 hours, 6 = 3+ hours); “On average, how often do you visit social media?” (1 = *less than once a day*, 2 = *once a day*, 3 = *2–3 times a day*, 4 = *once an hour*, 5 = *2–3 times an hour*, 6 = *more than 3 times an hour*). Participants’ responses to these two questions were averaged to indicate their social media use (*M* = 3.82, *SD* = 1.22, *r* = 0.60).

## Results

Descriptive analysis was conducted with jamovi version 0.9.0.1.<sup>30</sup> (Table 1). All scales showed a unidimensional structure except for immediate gratifications, with eigenvalues ranging from 2.17 to 7.58, and the variance explained by the unitary component ranging from 63.2% to 83.9%.

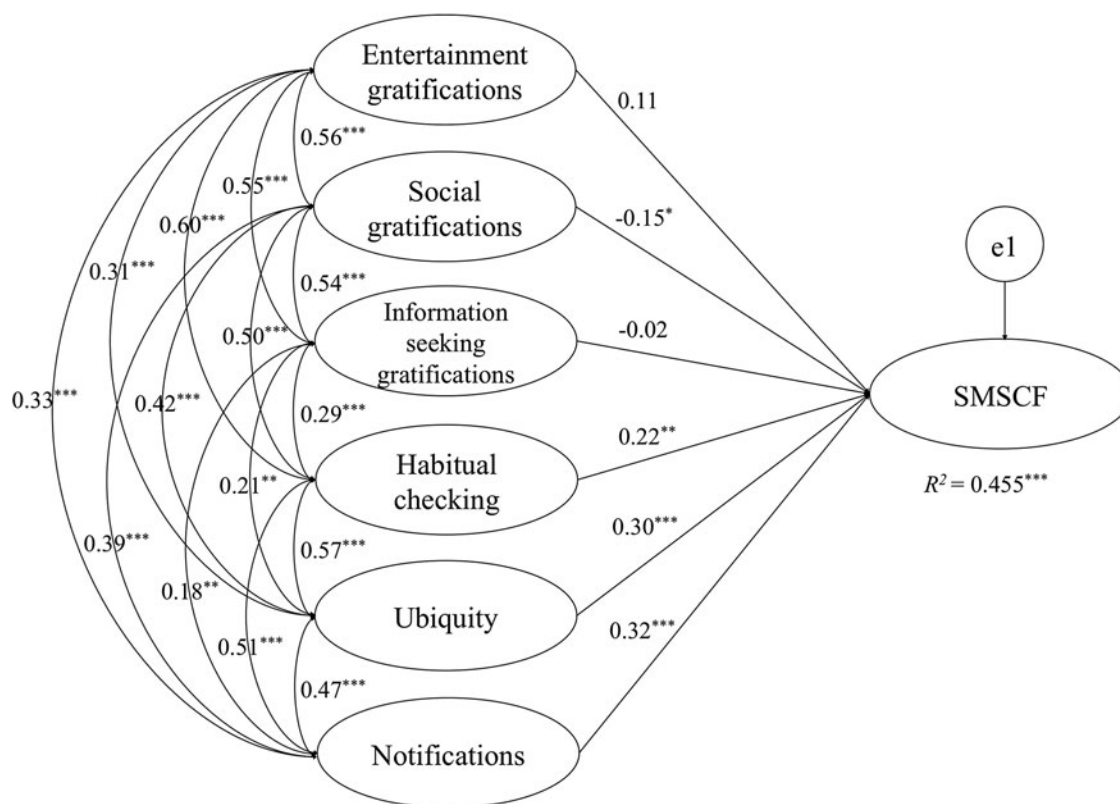
To test whether the proposed factors predict SMSCF, structural equation modeling was conducted with the R package Lavaan.<sup>31</sup> Exogenous variables were immediate gratifications (i.e., entertainment gratifications, social gratifications, and information seeking gratifications, we tested them separately to look into how different types of social media gratifications affect SMSCF), habitual checking, ubiquity, and notifications. The endogenous variable was SMSCF. The observation variables indicated good composite reliability (coefficient omega ranging from 0.78 to 0.94)<sup>32</sup> based on calculations using the semTools package.<sup>33</sup> The values of the average variance extracted (AVE) of the observation variables were all >0.50, except for entertainment gratifications (0.48), which suggests a limited convergent validity of this scale.<sup>34</sup> All values of the AVE were larger than the maximum shared variance (0.28) and the averaged shared variance (0.17), demonstrating good discriminant validity of the observation variables.<sup>34</sup> In short, the manifest observation variables in the model showed sufficient reliability and validity in examining the latent variables. Moreover, Mardia’s multivariate normality test using the MVN package<sup>35</sup> showed that the variables in the model did not meet the multivariate normality assumption (Mardia Kurtosis = 55.05, Mardia Skewness = 18648.16). Therefore, we used the maximum likelihood estimator with bootstrap estimates of standard errors (*SEs*) (bootstrap = 5,000) to test the model.

The original measurement model was modified by allowing residual covariates of the items (a) within the same scale/component and (b) based on the modification index (>20, 35 covariates were added; Appendix Table A3). The adjusted model showed acceptable fit,  $\chi^2 = 1632.411$ , *df* = 609,  $\chi^2/df = 2.68$ , *p* < 0.001, CFI = 0.934, TLI = 0.924, SRMR = 0.058, RMSEA = 0.053, 90% confidence interval [0.050–0.057]. Habitual checking (*b* = 0.28, *SE* = 0.09, *p* < 0.01), ubiquity (*b* = 0.32, *SE* = 0.06, *p* < 0.001), and notifications (*b* = 0.41, *SE* = 0.07, *p* < 0.001) were significantly related to more SMSCF. However, social gratifications showed a negative association with SMSCF (*b* = -0.14, *SE* = 0.06, *p* < 0.05), whereas entertainment gratifications (*b* = 0.11, *SE* = 0.07, *p* = 0.121) and information seeking gratifications (*b* = -0.01, *SE* = 0.04, *p* = 0.780) had no association with SMSCF. In total, the four predictors explained 45.5% of the variance of SMSCF (Fig. 1). The results remained the same after accounting for participants’ social media use, age, and gender (Appendix Table A2).

## Discussion

Consistent with the hypotheses, social media users who checked social media more habitually, perceived more ubiquity of social media, and more disturbances from notifications were more likely to fail to control their social media use while having other important goals. Herewith, this study provides empirical evidence regarding the factors that might turn media into a seductive temptation and result in media-related self-control difficulties, as proposed in previous literature.<sup>5,6</sup>

Unexpectedly, immediate gratifications from social media entertainment and information seeking were not related to SMSCF, whereas social gratifications were linked with lower levels of SMSCF. This suggests that the strength and direction of the relationship between immediate gratifications and SMSCF might depend on the type of gratifications obtained from using social media. For example, when people use social media for work-related social support, it does not necessarily disturb work-related goals and lead to self-control failures.<sup>36</sup>



**FIG. 1.** Standardized estimates of parameters of the model: entertainment gratifications, social gratifications, information seeking gratifications, habitual checking, ubiquity, and notifications as predictors of social media self-control failure. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . SMSCF, social media self-control failure.

It could also be that immediate gratifications play an indirect rather than a direct role in driving SMSCF. This is consistent with the social cognitive perspective on media behavior that expected outcomes of gratifications do not solely determine media behaviors, but that one should also consider the enactment of the intention to obtain such outcomes.<sup>37</sup> An important linkage between expected outcomes and the enactment intention could be the affective states associated with immediate gratifications.<sup>5</sup> For example, in a previous study wherein people predicted that Facebook use would make them feel better even though it made them feel worse, they still continued to use social media. People often use social media to satisfy various needs and, therefore, it is assumed that they learn to associate positive affective states with their social media behavior.<sup>38</sup> Indeed, frequent social media users display strong hedonic reactions upon exposure to social media-related stimuli (e.g., seeing the Facebook logo).<sup>12</sup> Thus, immediate gratifications might be indirectly related to SMSCF through the affective states associated with these gratifications. Although we measured social media gratifications, we did not measure participants' affective states associated with these gratifications. Whether immediate gratifications are related to SMSCF through the associated affective states should be addressed in future research.

Our study provides a first simultaneous test of the four predictors proposed in literature reviews,<sup>5,6</sup> which advances research on (social) media use and self-control. We also focused on a relatively mundane form of self-control failure, herewith adding to the literature about more pathological problematic social media use, such as compulsive social

media use or social media-related addiction symptoms.<sup>1,7</sup> In addition, previous studies investigating predictors of undesirable use of media (e.g., overuse and addiction) primarily focused on personality traits such as self-control<sup>39</sup> and impulsivity.<sup>40</sup> Instead of looking at relatively stable personality traits, our study focused on more changeable factors (e.g., smartphone notifications that could be switched off). Thus, the current results could provide input for the development of interventions aiming at the prevention of SMSCF.

The present results provide several suggestions for future research. First, we examined the unique contribution of each predictor of SMSCF (explaining 46% of the variance in total), but the interrelations between the predictors were relatively high. Although our model was based on literature proposing the predictors as independent factors influencing media self-control failure,<sup>5,6</sup> it is, of course, plausible that these factors could mutually reinforce or mediate each other's influence. Therefore, future research should consider alternative models and examine the interplay between these factors in predicting SMSCF. Second, we treated social media as a general category. However, the predictive strength of the factors leading to self-control failure may depend on the specific features of different social media platforms. For example, for instant messenger applications such as WhatsApp, notifications might be a stronger predictor for self-control failure because of its high relevance for instant messaging. Thus future research should take into account the type of social media platforms. In addition, our conceptualization of social media habitual checking does not distinguish the processes of habitual selection (e.g., habitually grabbing the phone) and habitual execution (e.g.,

habitually immediately replying to a message),<sup>10</sup> because we assumed that for social media habits, the two processes are often intertwined (e.g., habitually clicking on a social media notification). However, since media habits include more complex information processing than other relatively simple habits (e.g., riding a bicycle), the two processes might have different implications for the process of SMSCF, which future studies should, therefore, examine.

Some limitations of this study should be noted. First, the investigated factors were assumed to cause SMSCF. However, causality cannot be determined due to the cross-sectional design of this study. Second, notifications were measured using a self-designed scale with good reliability and a unidimensional structure. However, its psychometric properties should be further investigated. Finally, our participants reported a relatively moderate level of social media use, and they were recruited from an online sample. It thus remains unclear to what extent our findings apply to, for instance, heavier users of social media or an offline sample.

In sum, this study corroborates the idea that several media-related factors appear to turn social media into a seductive temptation, which might result in SMSCF. We hope our findings will inspire future studies to further test the model proposed in previous literature and work toward ways in which the effects of factors enhancing SMSCF can be mitigated.

## Endnote

a. After finishing the data analysis, we rechecked the results by including the “speeders” into the current data set. No differences were found regarding the main results of the study after adding these four cases.

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## Author Disclosure Statement

No competing financial interests exist.

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## Appendix

APPENDIX TABLE A1. EXPLORATORY FACTOR ANALYSIS OF THE IMMEDIATE GRATIFICATIONS SCALE

“Using social media enables me to immediately...”	Component			Uniqueness
	1	2	3	
IG1 ...cheer myself up.		0.421		0.571
IG2 ...feel entertained.		0.695		0.335
IG3 ...find a wealth of information.			0.818	0.211
IG4 ...obtain information that can’t find elsewhere.			0.841	0.271
IG5 ...feel involved with what other people do.	0.516			0.511
IG6 ...get support from others.	0.794			0.367
IG7 ...find something to talk about.	0.649			0.448
IG8 ...feel like belong to a group.	0.849			0.294
IG9...maintain relationships value.	0.717			0.534
IG10 ...find others who respect views.	0.802			0.294
IG11 ...find people like me.	0.776			0.336
IG12 ...provide help to others.	0.797			0.369
IG13 ...relieve boredom.		0.896		0.228
IG14 ...find a way to pass the time.		0.874		0.273
IG15 ...feel less lonely.	0.570			0.452
IG16 ...forget my problems.	0.441	0.535		0.419
IG17 ...feel relaxed.		0.614		0.422
Eigenvalues	7.321	2.092	1.252	
% of variance	31.7	20.1	11.0	

Note: N=590.

IG, immediate gratifications.

APPENDIX TABLE A2. MODEL SUMMARIES AND FIT STATISTICS FOR THE LATENT VARIABLE MODEL INCLUDING SOCIAL MEDIA USE, AGE, AND GENDER

	$R^2$	$B$	$\chi^2$	$df$	$CFI$	$TLI$	$RMSEA$ (90% $CI$ )	$SRMR$
Model	0.475		1918.814	741	0.928	0.916	0.052 (0.049–0.055)	0.055
IG-entertainment		0.07						
IG-social		−0.14*						
IG-information seeking		−0.01						
Habitual checking		0.19**						
Ubiquity		0.29***						
Notifications		0.29***						
Social media use		0.06						
Age		−0.13**						
Gender		0.03						

Note:  $N=590$ . To estimate each of the SEM model, ML estimator with bootstrap estimate of  $SE$  (bootstrap=5,000) was used.

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

Dependent variable: social media self-control failure; IG, immediate gratifications; CFI, comparative fit index; TLI, Tucker–Lewis index; RMSEA, root mean square error of approximation; CI, confidence interval; SRMR, standardized root mean square residual; SEM, structural equation modeling; ML, maximum likelihood; SE, standard error.

APPENDIX TABLE A3. VALUES OF THE ESTIMATED PARAMETER OF THE MEASUREMENT MODEL

	<i>Estimate</i>	<i>SE</i>	<i>z value</i>	<i>p (&gt; z )</i>	<i>Std.lv</i>	<i>Std.al</i>
IGE = ~						
IG1	1				0.901	0.626
IG2	1.029	0.115	8.989	0.000	0.928	0.785
IG13	1.059	0.167	6.345	0.000	0.954	0.743
IG14	1.018	0.167	6.077	0.000	0.917	0.705
IG17	1.116	0.12	9.29	0.000	1.006	0.653
IGS = ~						
IG5	1				0.956	0.705
IG6	1.308	0.08	16.403	0.000	1.25	0.768
IG7	1.054	0.072	14.596	0.000	1.007	0.696
IG8	1.328	0.086	15.514	0.000	1.27	0.792
IG9	1.051	0.082	12.874	0.000	1.005	0.62
IG10	1.267	0.093	13.646	0.000	1.211	0.773
IG11	1.277	0.093	13.794	0.000	1.22	0.757
IG12	1.267	0.091	13.949	0.000	1.211	0.761
IG15	1.127	0.09	12.526	0.000	1.078	0.606
IGI = ~						
IG3	1				1.41	0.917
IG4	0.798	0.075	10.58	0.000	1.125	0.683
SRHI = ~						
SRHI1	1				0.714	0.731
SRHI2	1.254	0.062	20.164	0.000	0.895	0.84
SRHI3	1.354	0.071	18.972	0.000	0.967	0.838
SRHI4	1.407	0.102	13.731	0.000	1.005	0.731
SRHI5	1.388	0.082	16.954	0.000	0.991	0.82
SRHI6	1.321	0.104	12.754	0.000	0.943	0.708
SRHI7	1.114	0.059	18.922	0.000	0.795	0.765
SRHI8	1.516	0.101	14.991	0.000	1.083	0.81
SRHI9	1.425	0.098	14.608	0.000	1.017	0.78
SRHI10	1.235	0.084	14.745	0.000	0.882	0.768
SRHI11	1.275	0.084	15.131	0.000	0.911	0.779
SRHI12	0.924	0.06	15.531	0.000	0.66	0.686
UBIQ = ~						
UBIQ1	1				0.871	0.769
UBIQ2	1.191	0.069	17.252	0.000	1.037	0.857
UBIQ3	0.918	0.076	12.135	0.000	0.8	0.689
UBIQ4	1.067	0.083	12.807	0.000	0.93	0.747

(continued)



APPENDIX TABLE A3. (CONTINUED)

	<i>Estimate</i>	<i>SE</i>	<i>z value</i>	<i>p (&gt; z )</i>	<i>Std.lv</i>	<i>Std.al</i>
NOTI=						
NOTI1	1				0.71	0.69
NOTI2	1.402	0.086	16.266	0.000	0.996	0.926
NOTI3	1.081	0.079	13.598	0.000	0.768	0.683
SMSCF=						
SMSCF1	1				0.902	0.822
SMSCF2	1.097	0.041	26.503	0.000	0.99	0.897
SMSCF3	1.131	0.045	25.175	0.000	1.021	0.897
Covariances:						
IGE~~						
IGI	0.694	0.112	6.193	0.000	0.546	0.546
IGS~~						
IGI	0.724	0.085	8.558	0.000	0.537	0.537
IGI~~						
SRHI	0.295	0.06	4.881	0.000	0.293	0.293
UBIQ	0.255	0.074	3.46	0.001	0.208	0.208
NOTI	0.177	0.054	3.296	0.001	0.177	0.177
SMSCF	0.187	0.065	2.877	0.004	0.147	0.147
IGE~~						
IGS	0.48	0.082	5.876	0.000	0.557	0.557
SRHI	0.386	0.05	7.666	0.000	0.6	0.6
UBIQ	0.241	0.059	4.11	0.000	0.307	0.307
NOTI	0.213	0.043	4.906	0.000	0.333	0.333
SMSCF	0.283	0.048	5.878	0.000	0.348	0.348
IGS~~						
SRHI	0.344	0.05	6.933	0.000	0.504	0.504
UBIQ	0.35	0.051	6.819	0.000	0.42	0.42
NOTI	0.265	0.043	6.119	0.000	0.391	0.391
SMSCF	0.228	0.048	4.774	0.000	0.265	0.265
SRHI~~						
UBIQ	0.352	0.038	9.237	0.000	0.565	0.565
NOTI	0.257	0.032	8.038	0.000	0.507	0.507
SMSCF	0.347	0.036	9.508	0.000	0.538	0.538
UBIQ~~						
NOTI	0.289	0.036	8.004	0.000	0.468	0.468
SMSCF	0.428	0.044	9.762	0.000	0.544	0.544
NOTI~~						
SMSCF	0.352	0.036	9.843	0.000	0.549	0.549
.IG1~~						
.IG2	0.102	0.103	0.997	0.319	0.102	0.125
.IG13	-0.274	0.069	-3.944	0.000	-0.274	-0.284
.IG14	-0.298	0.07	-4.244	0.000	-0.298	-0.288
.IG17	0.244	0.147	1.665	0.096	0.244	0.187
.IG2~~						
.IG14	-0.007	0.029	-0.231	0.817	-0.007	-0.01
.IG17	-0.02	0.084	-0.231	0.817	-0.02	-0.023
.IG13~~						
.IG14	0.589	0.078	7.537	0.000	0.589	0.743
.IG5~~						
.IG10	-0.107	0.041	-2.579	0.01	-0.107	-0.111
.IG12	-0.308	0.062	-4.941	0.000	-0.308	-0.31
.IG6~~						
.IG11	-0.121	0.047	-2.564	0.01	-0.121	-0.11
.IG7~~						
.IG8	0.214	0.077	2.789	0.005	0.214	0.211
.IG10~~						
.IG11	0.541	0.076	7.136	0.000	0.541	0.515

(continued)

APPENDIX TABLE A3. (CONTINUED)

	<i>Estimate</i>	<i>SE</i>	<i>z value</i>	<i>p (&gt; z )</i>	<i>Std.lv</i>	<i>Std.al</i>
.SRHI1 ~~						
.SRHI2	0.079	0.023	3.427	0.001	0.079	0.206
.SRHI6	-0.102	0.033	-3.113	0.002	-0.102	-0.163
.SRHI8	-0.14	0.025	-5.624	0.000	-0.14	-0.267
.SRHI2 ~~						
.SRHI3	0.15	0.026	5.671	0.000	0.15	0.411
.SRHI4	-0.077	0.023	-3.42	0.001	-0.077	-0.143
.SRHI5	0.123	0.026	4.766	0.000	0.123	0.309
.SRHI6	-0.12	0.029	-4.066	0.000	-0.12	-0.22
.SRHI9	-0.114	0.025	-4.648	0.000	-0.114	-0.243
.SRHI11	-0.064	0.021	-2.996	0.003	-0.064	-0.151
.SRHI3 ~~						
.SRHI5	0.133	0.03	4.445	0.000	0.133	0.305
.SRHI6	-0.075	0.029	-2.56	0.01	-0.075	-0.127
.SRHI9	-0.082	0.03	-2.723	0.006	-0.082	-0.159
.SRHI11	-0.082	0.024	-3.358	0.001	-0.082	-0.177
.SRHI4 ~~						
.SRHI6	0.144	0.054	2.662	0.008	0.144	0.163
.SRHI9	0.194	0.048	4.084	0.000	0.194	0.254
.SRHI5 ~~						
.SRHI8	0.138	0.031	4.384	0.000	0.138	0.254
.SRHI6 ~~						
.SRHI9	0.222	0.052	4.282	0.000	0.222	0.288
.SRHI7 ~~						
.SRHI12	0.089	0.026	3.39	0.001	0.089	0.189
.SRHI9 ~~						
.SRHI11	0.08	0.028	2.842	0.004	0.08	0.134
.SRHI10 ~~						
.SRHI11	0.09	0.028	3.216	0.001	0.09	0.167
.UBIQ1 ~~						
.UBIQ2	-0.073	0.055	-1.31	0.19	-0.073	-0.161
.UBIQ3	-0.042	0.028	-1.508	0.132	-0.042	-0.069
.UBIQ3 ~~						
.UBIQ4	0.415	0.057	7.244	0.000	0.415	0.597

Note:  $N = 590$ .

SE, standard error; Std.lv, standardized latent variables; Std.al, standardized both latent and observed variables; IG, immediate gratifications; SRHI, self-report habitual index; UBIQ, Ubiquity; NOTI, notifications; SMSCF, social media self-control failure.